

SURFACE AREAS AND VOLUMES

CM23M101301

Multiple Choice Questions:

1 mark each

1. A cone, a hemisphere and a cylinder stand on equal bases and have the same height. The ratio of their volumes is:
(a) 3 : 2 : 1 (b) 1 : 3 : 2 (c) 2 : 3 : 1 (d) 1 : 2 : 3
2. The volume of the largest right circular cone that can be cut out from a cube of edge 4.2 cm is:
(a) 9.7 cm³ (b) 77.6 cm³ (c) 58.2 cm³ (d) 19.4 cm³
3. A shuttle cock used for playing badminton has the shape of the combination of:
(a) a cylinder and a sphere (b) a sphere and a cone
(c) a cylinder and a hemisphere (d) a hemisphere and frustum cone
4. If a solid right circular cone of height 24 cm and base radius 6 cm is melted and recast in the shape of a sphere, then the radius of the sphere is:
(a) 6 cm (b) 4 cm (c) 8 cm (d) 12 cm
5. Total surface area of a cube is 216 cm², it's volume is:
(a) 216 cm³ (b) 144 cm³ (c) 196 cm³ (d) 212 cm³

Very Short Answer Type Questions:

2 marks each

6. A solid cone of radius 4 cm and vertical height 3 cm has to be painted from outside except the base. Find the surface area to be painted.
7. Water in a canal, 6 m wide and 1.5 m deep is flowing with a speed of 10 km/h. How much area will it irrigate in 30 minutes, if 8 m of standing water is needed?
8. A cylinder and a cone are of same base radius and of same height. Find the ratio of the volume of cylinder to that of the cone.

Short Answer Type Questions:

3 marks each

9. Right circular cylinder having diameter 12 cm and height 15 cm is full of ice-cream. This ice-cream is to be filled in cones of height 12 cm and diameter 6 cm having a hemispherical shape on the top. Find the number of such cones which can be filled with ice-cream.
10. Water is flowing at the rate of 5 km/hour through a pipe of diameter 14 cm into a rectangular tank, which is 50 m long and 44 m wide. Determine the time in which the level of water in the tank will rise by 7 cm.
11. A farmer connects a pipe of internal diameter 20 cm from a canal into a cylindrical tank in his field which is 10 m in diameter and 2 m deep. If water flows through the pipe at the rate of 3 km/hr, in how much time will the tank be filled?

Long Answer Type Questions:

4 marks each

12. A building is in the form of a right circular cylinder surmounted by a hemispherical dome both having the same base radii. The base diameter of the dome is equal to $\frac{2}{3}$ of the total height of the building. Find the height of the building, if it contains $67\frac{1}{21} m^3$ of air.
13. The barrel of a fountain pen, cylindrical in shape is 7 cm long and 5 mm in diameter. A full barrel of ink in the pen is used up on writing 3300 words on an average. How many words can be written in a bottle of ink containing one fifth of the litre?

